ENVIRONMENTAL PROTECTION AGENCY
REGULATION OF FUELS AND FUEL ALTERNATIVES
CHANGES TO RENEWABLE FUEL STANDARD

Words matter. A chain of events is triggered when words are put into law. Congress writes laws but the President's agencies must divine the precise meaning and methods to ensure compliance. Laws must be enforced lest they be rendered meaningless babble.

The Energy Independence and Security Act of 2007 (EISA) was a massive 1500 pages long. It provides a roadmap to 36 billion gallons of renewables by 2022.

For the last 18 months EPA has grappled with hundreds of issues presented by the law. EPA has now laid forth their best judgments to interpret and enforce the law and given us 120 days to comment before they make their final decisions.

EPA's final decision on these issues will have far reaching and potentially devastating impacts on the renewable fuels industry.

Herein are AGP's comments on just a few of the most important issues raised in the rulemaking.

ISSUE – Greenhouse Gas (GHS) Intensity Values

The law, for the first time, divides renewable fuels into four silos. For simplicity sake the silos are corn ethanol, biodiesel, foreign sugar cane ethanol and cellulose biofuels. The law and rules further complicate matters by assigning production method and feedstock "pathways" for each of these silos which result in many different EPA calculated GHG intensity "lookup" values. These lookup values translate into identification codes for each gallon of fuel. The system also portends an identity preserved farm to fuel tank tracking system for corn and soybean feedstocks using these codes.

"EISA" imposed a first-in-the-nation cap on greenhouse gas emissions from renewable fuel production. Failure to meet the caps results in the inability to generate credits – known as – Renewable Fuel Identity Numbers (RINS). Loss of RIN generating capacity would consign a renewable fuel plant to the scrap metal heap.

Much commentary has already been provided to EPA by the renewable fuel industry regarding the decision by EPA to consider "international" direct and indirect land use (ILU) changes that may result from the production of renewable fuels in the United States.

Neither Congress nor EPA knew how the international land use issue would rearrange the roadmap to 36 billion gallons. Had they known they might have written the law differently.

One hundred and sixty scientists asked EPA to stand down on efforts to quantify international land use changes. EISA did not direct EPA to delve into the international issue. So, it is clearly within EPA's purview to completely ignore or at least assign little value to these theoretical impacts. We encourage EPA to reconsider their use of highly speculative international land impacts.

Consequences for Soy biodiesel:

If EPA does not reconsider their ILU position, soy biodiesel is dead as a standalone renewable fuel. Prior to EPA's **calculation** of international direct and indirect land use it determined that soy biodiesel saved almost 80% GHG emissions compared to diesel. EPA's new calculation is 22 percent. The cap in the law is 50 percent with some limited flexibility left to EPA's discretion.

EPA notes that soy biodiesel could be "blended" with waste grease/animal fat biodiesel in a mixture to reach the 50% cap. This option may seem logical and reasonable on paper. It is not very practical on a commercial basis. Some plants have the capacity to process multiple feedstocks. Many plants do not. One important consideration for plants built prior to this rulemaking is the ability to produce Kosher glycerin used in the food and personal care markets. These plants may not process waste grease or animal fats and remain Kosher.

In the "Advanced" biofuel silo EPA has noted that imported sugar cane ethanol will most likely fill the volume gap not filled by biomass based diesel and cellulose biofuel. EPA notes that they would need to reduce the 50% GHG intensity cap from 50% to 40-44% in order for there to be adequate imported sugar ethanol supplies available.

We believe that a similar situation exists for biomass-based diesel. Animal fat and waste oil supplies are limited domestically. EPA notes that lowering the biomass-based diesel threshold from 50% to 40% would increase the amount of soy available for blending to average 50% GHG reduction in the silo. We support the option to reduce the biomass-based diesel GHG intensity threshold to 40%.

As a standalone fuel, soy biodiesel would need to compete with corn ethanol in the generic renewable fuel silo due to the ILU issue. EPA has already predicted that the silo is full without soy biodiesel. Any gain for soy biodiesel comes at the expense of corn ethanol.

Consequences for Corn Ethanol:

The consequences of international direct and indirect land use ILU considerations for corn-based ethanol would be as dire as for soy biodiesel but for the law's grandfathering provisions (which apply to ethanol but not biodiesel).

However, as with soy biodiesel, the "international" direct and indirect land use issue results in calculations making corn ethanol little better than gasoline. These computer modeling assumptions mean that future use of corn for ethanol beyond plants in the ground is ended.

Congress and EPA have convinced themselves that imported sugar cane ethanol and a fuel of the future made from grass and trees trumps corn ethanol. It is more than ironic that EPA modelers have managed to present hypothetic results whereby more sugar cane from countries with rainforest is better than more corn from America without rainforest.

Prior to mandates, ethanol consumption was supported almost exclusively by gasoline fuel tax incentives. Congress first approved these tax incentives after the 1978 Arab oil embargo partially to reduce dependence on foreign oil but mainly in response to chronically low farm commodity prices.

Even today the perception of chronically low commodity prices induces Congress to require that farmers (through CRP) be paid to NOT produce on 32 million acres of previously farmed land.

A needed rethinking of the Conservation Reserve Program (CRP) was not accomplished during the 2007 Farm Bill. The CRP could be re-engineered to achieve greater wildlife, water quality and soil erosion benefits while at the same time freeing the most productive land to produce food, feed and fuel.

CRP policy is not a topic for this rule making except that EPA assumed that existing CRP land is rented by taxpayers through the 2022 planning period. Thus, the U.S. land base is considered fixed and thus commodity prices go up and thus the computers generate land use changes abroad. When, in fact, the land base is not fixed in the U.S. by an act of God but by an act of man that can be changed

If EPA insists on sticking closely to their current land use modeling, they should also consider a case where non-priority CRP is released to supply grain and oilseeds in response to higher prices. We could easily release 15 million acres of low priority CRP and enroll 15 million acres of highest priority land for a net environment benefit that exceeds the current 32 million acres.

We believe the law and this rulemaking restrict the corn potential.

Food advocates point out that we need to feed 9 billion people by 2050. They say we need to double food production by that time. Population is only expected to grow by 30% -- and then level off at 9 billion – so why do we need to increase food production by 100% when population is only expected to grow by 30%?

If we increase yields by 2% compounded annually we double output in 35 years (2044). If we increase yields by 3% compounded annually we double food production in 24 years (2033).

Corn is the best example of what can be accomplished with biotechnology. We are well on the path to achieving between 2-3% annual increases in corn yields. The corn breeders are confident that they can get to 300 bushel per acre average yields by 2030.

If technology continues to deliver higher yields, we are staring at the need to find a home for 12 billion more bushels of corn 25 years from now.

That is enough corn for 32 billion gallons of additional ethanol – 3 times what we produce today. Remember that 1/3 of the dry mill ethanol bushel goes to feed for food animals so that takes care of the 30% needed for population growth in the food/feed market.

Combined with current production corn could supply somewhere between 30-40% of the national gasoline pool without using more acres and without disrupting food/feed supplies.

The legitimate non-food/feed potential of corn has been completely discounted in this law and rulemaking due in large part to the ILU issue.

ISSUE – Cellulose GHG Intensity Calculations

Biofuel from cellulose is the ultimate aim of EISA. What we must comment on is the inconsistent methodology to calculate "first generation" biofuels cost and benefits compared to politically favored "second generation" biofuels.

(a) Water Quality

EPA assumes that crop residue will be left on the ground for water sediment loading but taken from the ground for cellulose production. EPA can't have it both ways.

EPA assumes that 70% of cellulose biofuel will come from crop residue. EPA notes that taking such crop residue from the land will result in soil erosion no greater than "T" (Tolerance) depending on soil types and climatic conditions.

What EPA did NOT note is that soil erosion rate of "T" would portend a massive backslide in actual erosion rates and attendant water quality problems. If hypoxia in the "dead zone" of Gulf of Mexico is a problem today, just wait until we take these massive amounts of crop residues off the land.

When crop residue is removed, erosion increases. As erosion increases sediment loading and chemical runoff into waterways, lakes and oceans increase. EPA paid no attention to the great damage to water quality that would result from such residue removal.

For the past 30 years, universities, government and non-profits have encouraged through regulation (conservation compliance) and incentives conversion to cropping practices and tillage methods that result in erosion rates far better than "T".

Fortunately, soil erosion has slowed dramatically since the early 1980's. From 1982-2001 soil erosion declined 42 percent. Sheet and rill erosion slowed from 4.0 tons per acre to 2.7 tons per acre. Wind erosion slowed from 3.3 tons per acre to 2.1 tons per acre.

The CRP and Conservation Compliance provisions of the farm bills target 124 million acres of Highly Erodible Land (HEL). Conservation compliance and CRP along with changes in farming practices have succeeded in bringing 23 million acres of HEL to within tolerable (T) erosion rates.

Interestingly, erosion rates on 296 million acres of non-HEL have fallen to tolerable (T) on 22 million acres. The reduction in erosion on non-HEL is almost equivalent to the reduction on HEL. The improvements on non-HEL are almost strictly due to changes in farming practices – not Farm Bill or government policy.

Gains in sheet and rill erosion are due primarily to voluntary changes in tillage practices by farmers and conservation compliance requirements.

(b) Emptying the Carbon Sink:

Most importantly, from a GHG intensity perspective, is EPA's decision to ignore the soil organic carbon effect of removing crop residues.

It is well known that removal of crop residue will reduce soil organic carbon and thus increase atmospheric CO2 loading. Yet, EPA chose to ignore this most basic element of soil and climate change science.

There is great irony in the fact that farmers are presently being paid by the private sector to "bank" their soil organic carbon in soil "sinks" for climate change purposes. These carbon credits are largely the result of farming practices that increase soil organic matter over time.

So, on one hand, we have government driven climate change practices that recognize the importance of soil organic carbon provided by retaining crop residue and building organic matter. On the other hand, we have EPA cellulose biofuel GHG intensity calculations for crop residue removal that completely ignore the atmospheric loading of greenhouse gases that will be encouraged.

Soils act as carbon sinks. Typical farmland has about 2 percent organic matter content. Farms that utilize no-till or minimum till have around 4 percent and grasslands have about 6 percent organic matter content. In the US several million acres of no-till farm ground have already been aggregated, verified and traded as CO2 emissions offsets at the Chicago Climate Exchange.

The carbon sequestration ability of farmland is enormous. For example, the average organic matter of a traditionally tilled acre is 2 percent. Through the use of no-till or minimum-till methods the organic matter can be increased to 4 percent over 20-30 years. Some scientists believe soil organic carbon could be restored to 6 percent or above on cropped ground. The CO2 equivalent of greenhouse gasses saved would be around 65 tons per acre. On 155 million acres of corn and soybean land the greenhouse gas savings could be 10 billion tons!

One study reports that agricultural soils could capture enough CO2 to offset any further increase in the atmospheric inventory for 12-24 years.

The results from a 2005 EPA study suggest that land-management practices can play a major role in enabling the United States to meet GHG emission reduction target. If offsets command a price of $15 per ton of CO2, land-management projects could offset almost 1,500 million metric tons of CO2 per year by 2025. At $50 per ton, offsets could total almost 2,000 million metric tons of CO2 per year.

We believe that EPA should refigure the GHG intensity values for cellulose not only from crop residue but other sources of cellulosic biomass. We also believe that there needs to be consistency with the water quality assumptions regarding crop residues.

Another example of cellulose bias is EPA's inconsistent treatment of land for purposes of determining feedstock compliance.

According to EPA's interpretation of ESIA, land never touched by a human hand until December 20, 2007, could be used to produce cellulose but if it were to be broken out for corn or soybeans such crops could not be used for biofuels to generate RINS.

SOLUTIONS:

1) Drop consideration of "international" land use change. Focus on domestic land use change only.
2) Assume that CRP land will be released in response to a long term change in demand for ethanol and soy biodiesel.
3) Assume corn and soybean yield increases more in line with recent experience rather than long term trends.
4) Reduce the biomass-based diesel fuel GHG threshold To 40%.
5) Recalculate the GHG intensity value for advanced fuel given the assumption that 70% will come from crop residue.
6) Refigure the water quality impacts resulting from greater erosion and water quality reduction when crop residues are removed.

ISSUE – Counting Gallons

The 36 billion gallon roadmap requires a method to count gallons. One way to count is by volume meaning one gallon equals one gallon. Another way to count is by energy content compared to something. In RFS1 EPA counted one biodiesel gallon as 1.5 gallons of ethanol based on energy value calculations.

Due to the fact one renewable fuel silo has been replaced by four with specific gallon targets, EPA has proposed to continue the energy content calculation but then adjust the volumetric requirements. EPA appears to believe that either method provides the same result.

SOLUTION:

The logic in RFS1 was sound.

We recommend that for biomass based diesel not meeting the advanced GHG reduction threshold an energy content based factor of 1.5 be continued.

For biomass based diesel meeting the "advanced" fuel threshold a volume based system should be used. However, the volume should not be adjusted and should be the same as the statute on a volumetric basis.

ISSUE – Compliance and Enforcement:

Under RFS1 congress and EPA required relatively simple tasks. Oil companies were given a target inclusion rate for renewables and producers issued RINS for the gallons they produced. Oil companies purchased the gallons and/or RINS.

RFS2 complicates matters geometrically. Not only are there four renewable fuel silos instead of one, there are multiple productions processes and feedstock pathways all generating different "lookup" GHG intensity values and identification numbers.

The favorability and/or discrimination of one pathway versus another means producers must prove to EPA that they are being truthful about their feedstocks, production methods and resulting fuels.

(a) Feedstock Certification:

<u>If the GHG intensity calculations do not kill off corn and soy based renewables the feedstock certification section could.</u>

Congress required renewables to be made from "biomass" produced on land not broken out after the day the bill was signed (December 19, 2007) and that such land be "actively managed".

Since the 1985 Farm Bill, USDA has imposed severe penalties on farmers who "sodbust" native land or "swampbust" wetlands. It is likely that USDA knows the exact location, farmers and property owner where sodbusting or swampbusting has occurred or might occur in the future.

We know that some domestic sodbusting of native grass has occurred the past few years. This sodbusting has occurred in large part due to Congressional and USDA refusal to release the paid land reserve CRP when it was needed. It is like locking grain in the storage bin while animals go hungry.

Prior to the renewable fuel boom land use data from 1982-2002 shows that cropland (including CRP) dropped 10 million acres. Pasture dropped 14 million acres and range dropped 10 million acres. Almost all of these agricultural losses are offset by a 35 million acre increase in developed land if you exclude CRP. The total reduction in agricultural land use was 70 million acres (somewhat offset by occasional haying and grazing on CRP).

Development losses came from range, pasture and wetlands at the same time taxpayers were funding the CRP to reestablish grasslands and wetlands. From a policy perspective we lost as much agricultural land to development as was put in the CRP.

In the pre-swampbuster period of 1974-83 wetland losses averaged 150,000 acres per year. That rate slowed to 56,000 acres per year in the 1997-02 period. Combined with wetland gains from CRP and the Wetland Reserve Program (WRP) it is estimated that the US actually had a net wetland gain of 131,000 acres for the 1997-02 period representing a major trend reversal.

The real threat to land use has not come from renewables - it has come from houses, roads and strip malls. We lose about 1 million agricultural acres annually to development regardless of biofuels. If Congress and EPA are really concerned about land use they need to consider the fact that cropland has changed little in 100 years but developed land has grown like an unchecked cancer. Every new house, road, strip mall, factory, warehouse acreage, truck stop or other development that takes ag land out of production should be assigned an international direct and indirect land use GHG intensity value. Urban, suburban and rural sprawl should be subject to the same test and caps required on renewables.

(b) "Actively Managed"

Congress also required the land to be "actively managed." EPA has proposed a series of options designed to prove that the law is being complied with.

At one end of the spectrum, EPA has proposed that farmers, grain elevators and renewable fuel producers operate a complete identity preserved (IP) system with certification and paperwork required on every 15 loads.

We have estimated that this option would require a minimum of 400,000 documentations annually if only the corn for ethanol delivered direct was ensnared, More likely, all corn and soybeans would be caught up in the madness thus requiring more than 1.2 million documentations annually for corn and soybeans.

If cellulose fuel ever becomes a reality it would require many times more documentations because grass is far less dense than corn on an energy basis and requires far more handling and loads to produce the same amount of fuel. One ton of dry corn stover for example takes up about 150 cubic feet of space. One ton of corn takes up about 50 cubic feet. Given that under experimental (best case) conditions, a ton of corn stalks only yields 75% of corn for ethanol. The paperwork load for cellulose would be 4 million certifications per year.

If EPA were to insist on imposing an IP program for renewable fuels it is unlikely that the U.S. modern and efficient grain handling system could continue in its present form.

The American grain handling system is the envy of the world because it is a high speed, bulk, comingled system. Only a very small portion of the US grain and oilseed system is built for identity preservation. An IP system would require farmers and producers to bypass the local grain elevator system.

Farmers and producers could be required to build billions of bushels of new storage. The high speed bulk handling system would be bypassed. Instead, farmers would deliver direct to the renewable fuel producer.

As for native land suitable for producing biomass-based fuel, EPA recognizes that such land is almost non-existent. Almost every acre of land suitable for biomass production has been managed, cleared or broken out at some point in the past.

SOLUTION:

EPA already knows that 99% or more of the biomass produced for renewable fuel production will meet the "non native" and "actively managed" standards of the law.

We recommend that instead of requiring mass amounts of paperwork, audits and segregation for the 99% in compliance, focus on the 1% that might not be in compliance. Renewable fuel producers and grain handlers could be supplied an inventory of land in their region/or nationwide that has been determined to not be in compliance or at risk. If EPA can use satellite information to determine deforestation around the planet surely they can use presently available maps to identify virgin lands in the United States. Owners of such land are also easily identified and could be notified. Similarly, renewable fuel producers could be given such maps and ownership records. Such information would be sufficient to warn the system not to take biomass from the operator of such land unless he or she verifies that they have segregated the harvest from such non-compliant land.

EPA states that the onerous feedstock verification regimes proposed could be streamlined and simplified if they had access to USDA information already collected from producers. Surely the various bureaucracies of government can find a way to share what they already know.

Similarly, at the renewable fuel level, the IRS already audits our plant to make sure we produced the fuel for which tax incentives are applied. EPA did not audit or require third party verifications under RFS1 and it should not under RFS2. EPA should do spot audits or rely on IRS audits.

ISSUE – Grandfather Clause

Grandfathering as presented in the proposed rule rely on a number of various definitions and concepts. One basic approach to grandfathering is proposed and comment is requested on five additional potential approaches.

Basic Approach: Indefinite extension of grandfathering for facilities that commenced construction before a certain date, with a limitation based on the "baseline volume" of renewable fuel.

-The definition of "commenced construction" contained in the PSD regulations is familiar to most people and is probably acceptable and should be easily documented through the air construction permitting process that facilities are subject to.

-The baseline volume should be the greater of the nameplate capacity or the permitted capacity of the facility. There may be situations where the facility is not permitted for the full nameplate capacity, but the nameplate capacity more fully represents the volume to which capital investment has been committed.

Where air permit limitations on capacity are expressed in hourly, daily maximums, it is proposed that those numbers are extrapolated to an annual basis using only 7884 hours per year (90% of the total 8760 hours available in a year). The total 8760 hour per year should be used unless the permit limits the total days of operation to some number less than 365 days per year. While most facilities take an annual shutdown for some maintenance or repairs, the timing of the shutdown usually does not occur on the same days every year. Thus a facility may operate 365 days (8760 hours) in a row in between shutdowns.

There are some situations where the annual peak production of a facility is proposed as the avenue for determining the baseline capacity. This may not fully represent the true capacity of the facility due to operational constraints such as market conditions or operating capital during the early years of operation.

Other Approaches: Four of the five other approaches offer some rational for expiration of the grandfathering.

-One proposal is for the grandfathered volumes to expire when sufficient changes are made so as to consider the facility "reconstructed" as defined under EPA PSD regulations. "Reconstruction" occurs when the cost of the project exceeds 50% of the cost of constructing a comparable new facility.

"Reconstruction" under PSD regulations requires a facility to conduct a BACT (Best Available Control Technology) analysis to make sure that the control equipment being used in the new construction is the best that is economically justified. It does not require the use of an entirely new process and fuel switches and emission increases are allowed as long as BACT control equipment is used and the impact to the ambient air does not exceed certain established thresholds.

This concept of using "reconstruction" for retiring grandfathered volumes does not work under RFS2. RFS2 may require replacement of equipment with entirely different processes. There is no allowance for switching to more economical fuels. There is no "cost effectiveness" evaluation. There are no set impact thresholds for any increase in emissions.

This is one of the most blatant violations of EPA's own stated goals in the proposed rule. EPA states "At the same time we also want to offer protection for historical business investments that were made prior to enactment of EISA."

No proposal could contradict EPA's stated goal more than the idea of using "New Source Performance Standards (NSPS) to interpret the EISA Grandfather Clause.

Ethanol plants have been operating since the late 1970's and early 1980's. These plants will have had numerous upgrades and expansions in the past 25-30 years in order to stay competitive and comply with ever increasing safety, health and environmental regulations.

Even if an old plant has been completely rebuilt prior to the date of enactment such business decision should surely not be interpreted as thereby disqualification for grandfathering.

Nowhere does EISA say that EPA should revoke the grandfather clause after ANY period of time. EPA's proposals to revoke the clause goes beyond the law and is clearly designed to kill any future growth in corn ethanol.

EPA has relied on conjecture from construction and engineering companies that producers will upgrade existing plants with equipment that will somehow bring such plants in under the 20% cap for "new" plants. In fact, EPA's proposals – taken in their entirety, will put a chilling effect on any further investment in existing corn based ethanol plants.

If EPA's intent is to end all corn based ethanol by 2022 – ending the Grandfather Clause is a sure way to succeed.

Debottlenecking: A facility is typically permitted at its "bottlenecked" capacity. The nameplate capacity of a facility could be determined by the highest capacity of the "significant" production components of a process, as long as the cost of debottlenecking does not exceed 25 percent of the cost of the existing facility.